UTAH GEOLOGICAL AND MINERALOGICAL SURVEY

QUARTERLY REVIEW

Vol. 5, No. 2 | *Geologic Investigation in the State of Utah* | May 1971

EARTH ART IN GREAT SALT LAKE

An overwhelming work of art has been constructed in Great Salt Lake. In April of 1970 Robert Smithson, builder of earthworks as art objects, supervised the construction of a spiral jetty of earth and black basalt rocks. It is 1,500 feet long and 15 feet wide.

The project was financed by $25,000 from the Dwan Gallery of New York and the Ace Gallery of Vancouver, B. C.

Smithson, seemingly intent like the ancient Egyptians on creating landmarks on a grand scale, negotiated a 20-year lease with the Utah State Land Board for a 10-acre site at the north end of the Lake. The dark coil of the jetty lies in this barren area in water colored red by algae. The jetty itself is outlined by the white of precipitated salt.

To make this piece accessible to earthbound viewers, Smithson directed a 16 mm film of it, starting with the actual construction. While the film is called a documentary, it is a work of art in itself. It is being shown and marketed in an edition of 300, at $300 a print.

The film begins with a series of contrasts and variations of the idea of the spiral. It is a progression from spirals of dust behind the car on the road to the Jurassic and dinosaurs to trucks and bulldozers, with peaceful interludes of pink water on which float patches of silvery foam. The reflection of the sun dances on the water in the curve of the spiral.

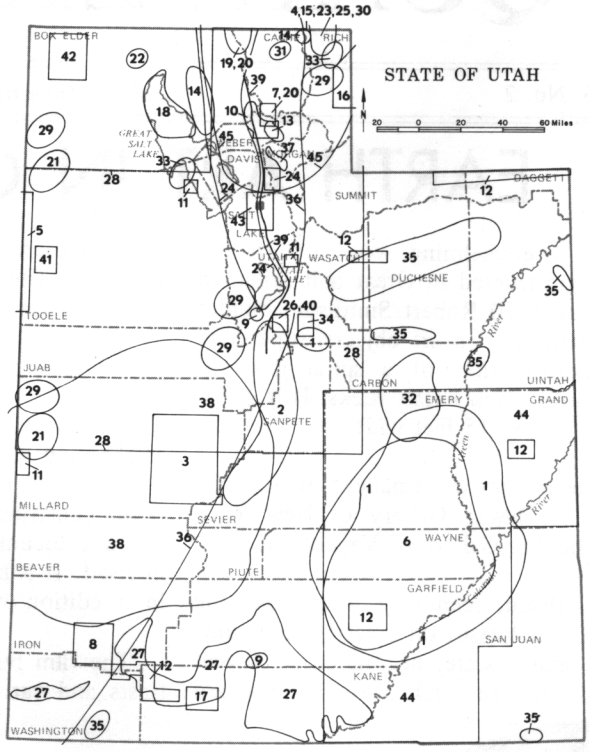
The film reaches a hypnotic climax a long way from the prosaic road and the mundane maps and lake charts of the beginning. Smithson holds his audience transfixed for 35 minutes, longer than some people spend at an entire art exhibition.

Spiral jetty, by Robert Smithson. This work of art, 1,500 feet long and 15 feet wide, was constructed in the Great Salt Lake in April 1970. Photo courtesy of Dwan Gallery, New York.

Summer Field Work in Utah

The geologists who plan to work in Utah during the 1971 field season are listed below. The reference numbers in the left column correspond as far as possible with the location numbers on the accompanying map.

1. Baer, J. L., Brigham Young Univ. — 1. Paleoecology of Green River Formation. 2. Permian-Triassic unconformity, southeast Utah.
2. Baer, J. L., and L. Hintze, Brigham Young Univ. — Structure of eastern thrust belt.
3. Best, M. G., Brigham Young Univ. — Late Cenozoic volcanoes of Black Rock Desert.
4. Biesinger, J. C., Utah State Univ. — Geochemical aspects of Bear Lake sediments, Utah-Idaho.
5. Bissell, H. J., Brigham Young Univ. — Toana-Goshute ranges, east Nevada-west Utah.
6. Blakey, R. C., Univ. of Iowa — Triassic stratigraphic study, south central Utah.
7. Blau, J. G., Utah State Univ. — Geology of south part of James Peak quadrangle.
8. Bullock, K. C., Brigham Young Univ. — Geology and ore deposits of Iron Springs district, Iron County.
9. Bushman, J. R., Brigham Young Univ. — 1. Spore and pollen study of Wahweap Formation. 2. Continued work on the palynology of the Spolten Cave Archeological site near Santaquin, Utah.
10. Crittenden, M. D., Jr., USGS — Stratigraphic mapping of Huntsville-Willard Peak area.
11. Currey, D. R., Univ. of Utah — 1. Desert-basin microrelief, Snake Valley. 2. Holocene beaches, Stansbury Island. 3. Holocene glacial and periglacial geomorphology, Mt. Timpanogos.
12. Doelling, H. H., UGS — Mapping of coal deposits: 1. Sego-Nash Canyon area. 2. Tabby Mountain. 3. Henry's Fork. 4. Kolob-Harmony. 5. southern Henry Mountains.
13. Doyuran, V., Univ. of Utah — Ground-water resources of Ogden Valley, Utah.
14. Francis, G. G., Utah State Univ. — Environmental analysis of the Swan Peak Formation in Wellsville Mountain and the Promontory Range, north central Utah.
15. Fuller, R. L., Utah State Univ. — Sediment-water interface geochemistry in Bear Lake, Utah-Idaho.
16. Gere, W. C., USGS — Geology and phosphate deposits of the Crawford Mountains, northern Utah.
17. Goode, H. D., Univ. of Utah — General geologic mapping of the Bald Knoll and Skutumpah Creek quadrangles.
18. Goodwin, J. H., Univ. of Utah — Salt-brine balance, north arm of Great Salt Lake, Box Elder County.
19. Gray, W. E., Utah State Univ. — Structural geology of south part of Clarkston Mountain, Malad Range.
20. Hardy, C. T., Utah State Univ. — 1. Structural geology of James Peak quadrangle, Utah. 2. Structural geology of Malad and Bannock ranges, Utah-Idaho.
21. Hoggan, R., Brigham Young Univ. — Paleoecology and biostratigraphy of the Guilmette Limestone.
22. Howes, R. C., Utah State Univ. — Geology of the Wildcat Hills, Box Elder County.
23. James, W. C., Utah State Univ. — Carbonate depositional environments in Fish Haven Formation, northwest Utah.
24. Kaliser, B. K., UGS — 1. Slope stability of Bonneville Basin sediments. 2. Precambrian hydrology, east of Bountiful. 3. Significance of microfaulting along the Wasatch Front. 4. Hydrology of solid waste sites in Utah.
25. Kerns, R. L., Jr., Utah State Univ. — 1. Geochemistry of Bear Lake ecosystem, Utah-Idaho. 2. Geochemistry cycling of metal ions in clay-water systems.
26. Mahfoud, R. F., Brigham Young Univ. — Paragenesis and mineralogy of the Burgin mine, East Tintic district, Utah County.
27. Moir, G. J., UCLA — Environmental analysis of Upper Cretaceous, southwest Utah.
28. Moyle, R. W., Weber State College — Description and occurrence of Mississippian pentamerids in north and central Utah.



29. Newman, G., Brigham Young Univ. — Mississippian conodonts.
30. Oaks, R. Q., Jr., Utah State Univ. — Pleistocene and Recent lake fluctuations in Bear Lake Valley, Utah-Idaho.
31. Olsen, D. R., Utah State Univ. — Igneous petrology of White Pine Canyon, Wasatch Mountains.
32. Orgill, J., Brigham Young Univ. — Stratigraphy and paleogeography of Permian-Triassic unconformity in the San Rafael Swell.
33. Petersen, M. S., Brigham Young Univ. — Mississippian ammonoids.
34. Pinnell, M. L., Brigham Young Univ. — Geology of the Thistle quadrangle.
35. Ritzma, H. R., UGS — 1. Analysis of fracturing and jointing, northwest Uinta Basin. 2. Mapping of oil-impregnated sandstone deposits. 3. Petroleum study of Boundary Butte.
36. Robison, R. A., Univ. of Utah — Agnostid trilobites of North America, with emphasis on Great Basin of Utah and Nevada.
37. Saxon, F. C., Univ. of Utah — Hydrologic resource evaluation of Morgan Valley, Utah.
38. Shuey, R. T., Univ. of Utah — Paleomagnetic stratigraphy, Needles Range Formation, southwest Utah.
39. Smith, R. B., Univ. of Utah — 1. Seismic refraction profiles, northeast Utah-southwest Wyoming. 2. Earthquake monitoring, Wasatch fault zone.
40. Smith, S. M., Brigham Young Univ. — Mineralogy and trace element study of the manganese oxide deposits, Burgin mine, East Tintic district, Utah County.
41. Thomson, K. C., Southwest Missouri State College — Mineral deposits of Dutch Mountains, Tooele County, Utah.
42. Todd, V., Stanford Univ. — Metamorphism and structure of rocks, south Grouse Creek Mountains, Utah.
43. Van Horn, R., USGS — Geology of Salt Lake City.
44. Wengerd, S. A., University of New Mexico — Petroleum prospects, west Paradox region, southeast Utah.
45. Williams, J. S., Utah State Univ. — Middle Devonian-Upper Devonian boundary in north Utah.

Utah Geology in Print

A list of papers appearing in 1970 which pertain to the geology and mineral industry in Utah has been prepared and printed below. Papers published previously which have not yet been listed have been included.

The staff of the University of Utah Engineering and Physical Sciences Library, under the direction of Edith Rich, generously provided the *Quarterly Review* staff with the list of papers.

The papers are listed alphabetically by author and by subject.

The following sources were used to provide information:

Abstracts of North American Geology.

Geological Society of America, Bibliography and Index of Geology.

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Observe the postage stamp; its usefulness depends on its ability to stick to one thing until it gets there.

Josh Billings

QUARTERLY REVIEW

State of Utah .....*Calvin L. Rampton Governor*
University of Utah .....*James C. Fletcher President*
College of Mines & Mineral Industries .....*George R. Hill Dean*
Utah Geological & Mineralogical Survey .....*William P. Hewitt Director*

UTAH GEOLOGICAL AND MINERALOGICAL SURVEY
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EARTHQUAKE EPICENTERS

General earthquake epicenters in or near Utah for October, November and December 1970, and January 1971, with dates of occurrence and approximate magnitude, are listed below. Unless otherwise indicated, localities are in Utah.

		Magnitude
October		
1	West of Mexican Hat	2.6
1	East of Kemmerer, Wyoming	2.9
1	Near Goshen	2.0
1	East central Nevada	3.0
6	10 km east of Steamboat, Colorado	3.3
7	East of Kemmerer, Wyoming	2.8
7	East central Nevada	2.7
10	Near Nephi	No mag.
10	Near Antimony	3.6
13	Near Richfield	2.7
13	Near Gunnison	<2.0
14	Near Marysvale	<2.0
17	North of Kemmerer, Wyoming	3.4
18	Near Fish Lake	2.2
18	Near Monroe	<2.0
18	East of Richfield	2.3
19	Rangley, Colorado	3.3
20	South of Sunnyside	<2.0
20	South Wyoming	No mag.
21	South of Sunnyside	2.1
22	Near Bloom (E. of Sevier Lake)	No mag.
22	Utah-Arizona border near Monument Pass	3.0
24	Rangley, Colorado	3.0
25	Near Antimony	2.6
25	Near Ephraim	2.9
25	Near Salina	3.5
25	South Wyoming	No mag.
25	San Rafael Swell	No mag.
25	Southeast Nevada	3.8
25	South of Sunnyside	2.5
27	Near Moore (S. of Castle Dale)	2.8
29	San Rafael Swell	2.8
30	San Rafael Swell	<2.0
30	South of Sunnyside	<2.0
20	San Rafael Swell	<2.0
November		
1	Great Salt Lake (Bear River Bay)	2.2
2	Great Salt Lake (Bear River Bay)	2.0
3	Great Salt Lake (Bear River Bay)	<2.0
3	Near Cedar City	No mag.
6	San Rafael Swell	2.4
10	Near Ephraim	No mag.
12	South of Sunnyside	2.1
12	South of Sunnyside	1.8
12	South of Sunnyside	2.4
14	South Utah-Colorado border	3.2
14	South of Sunnyside	<2.0
14	San Rafael Swell	1.7
15	Near Castle Rock	2.0
15	South of Sunnyside	<2.0
17	3 km north of Jensen	No mag.
18	Near East Park Reservoir	No mag.
18	Magna	2.5
20	Rangley, Colorado	3.0
24	South of Sunnyside	<2.0
24	San Rafael Swell	No mag.
24	East of Randolph in Wyoming	3.0
26	Near Great Salt Lake	2.2
27	Near San Rafael Reef	2.5
27	Near Nephi	2.5
27	Utah-Arizona border near Rainbow Lodge	3.4
27	Near Morgan	No mag.
28	Near San Rafael, New Mexico	4.0
December		
1	South Wyoming	No mag.
2	East of Randolph, Utah, in Wyoming	3.3
2	East of Randolph, Utah, in Wyoming	3.0
3	South Nevada-Utah border	3.8
4	Near Morgan	1.9
4	Northwest of Nephi	2.8
4	Near Cisco	No mag.
4	Promontory Point	No mag.
5	West central Nevada	2.8
9	North San Rafael Swell	No mag.
10	45 km northeast of Vernal	2.7
10	Central Utah-Nevada border	3.2
11	East of Randolph, Utah, in Wyoming	No mag.
12	Near Cisco	No mag.
15	South of Sunnyside	No mag.
16	East of Randolph, Utah, in Wyoming	2.5
18	South of Sunnyside	<2.0
18	South of Sunnyside	<2.0
20	South of Sunnyside	2.1
21	North San Rafael Swell	<2.0
21	South of Sunnyside	<2.0
21	West central Nevada	2.9
22	Near Eureka	2.5
22	East of Moab	No mag.
24	East of Randolph, Utah, in Wyoming	No mag.
25	North of Vernal	1.8
27	South of Sunnyside	<2.0
30	South Utah-Arizona border	2.5
30	Near Hanksville	2.9
31	53 km north of Vernal	No mag.
31	East of Randolph, Utah, in Wyoming	No mag.
31	43 km north of Vernal	2.1
January		
1	60 km east of Randolph, Utah, in Wyoming	No mag.
2	Utah-Colorado border near Moab, Utah	No mag.
3	Near Manti	<2.0
4	Albuquerque, New Mexico	5.1
4	South of Sunnyside	<2.0
5	South of Sunnyside	<2.0
5	45 km east of Randolph, Utah, in Wyoming	2.2
6	South Utah-Nevada border	3.1
8	South of Sunnyside	<2.0
8	South of Sunnyside	<2.0
9	Central Utah-Arizona border	No mag.
10	Waterpocket Fold	2.6
10	Central Nevada	3.0
12	South Utah-Nevada border	3.2
14	South of Sunnyside	<2.0
14	South of Sunnyside	2.1
14	Near Huntsville	2.1
14	East of Randolph, Utah, in Wyoming	<2.0
17	Central Nevada	<2.0
19	Near Moore	2.3
20	Near Moore	<2.0
20	Green River Desert	No mag.
20	Central Utah-Nevada border	2.5
22	35 km southeast of Vernal	2.4
23	30 km southeast of Vernal	2.3
25	Central Utah-Nevada border	3.0
27	Near Kemmerer, Wyoming	2.4
28	Near Hanksville	3.3
30	Near Morgan	2.0
31	South Idaho	No mag.

These earthquakes were recorded by the University of Utah seismograph stations under the direction of Kenneth L. Cook. All locations and magnitudes are preliminary determinations; the final determinations will be printed in the University of Utah Seismological Bulletin, issued quarterly.

When geologists have a rock festival, do they all get stoned?

UTAH
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Address correction requested